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DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON, D.C. 20310

IN REPLY REFER TO

AGDA (M) (3 Feb 70) FOR OT UT 694295

5 February 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 299th
Engineer Battalion, Period Ending 31 October 1969

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2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

Kenneth G. Wickham

KENNETH G. WICKHAM
Major General, USA
The Adjutant General

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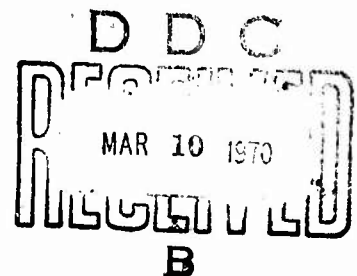
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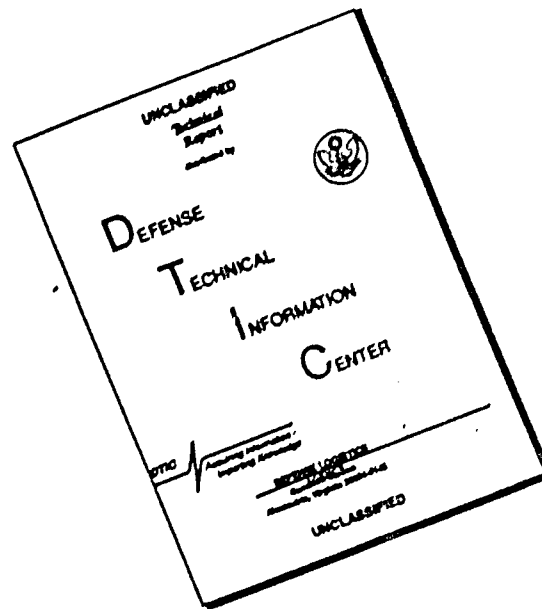
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DEPARTMENT OF THE ARMY
Headquarters, 299th Engineer Battalion (C)
APO 96238

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EGCD-01

31 October 1969

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion (C)
Period Ending 31 October 1969, RCS CSFOR - 65 (R2)

Commanding Officer, 937th Engineer Group (C), APO 96318
Commanding General, 18th Engineer Brigade, APO 96377
Commanding General, United States Army, Vietnam, ATTN: AVHGC - DST, APO 96375
Commander in Chief, United States Army, Pacific, ATTN: GPOP - OT, APO 96558
Assistant Chief of Staff for Force Development, Department of the Army
(ACSFOR, DA), Washington, D.C. 20301

1. Operations: Significant Activities.

In the period 1 August 1969 to 31 October 1969, the 299th Engineer Battalion continued to consolidate within Binh Dinh Province which effectively marks the limits of the Battalion area of responsibility. On 16 August, the Battalion Headquarters relocated from Phu Tai (CR 008185) to its present location in Qui Nhon (CR 076175), and Company B moved from the Phu Tai area to Long My (BR 992192). There were no other moves until 12 September when Company D, which had been based at Camp Radcliff with Company A in An Khe, moved and closed at LZ Uplift (BR 919745). The final disposition of subordinate elements is as follows:

Battalion Headquarters	Qui Nhon	CR 076175
Headquarters Company	Qui Nhon	CR 071214
Company A	An Khe	BR 443442
Company B	Long My	CR 992192
Company C	LZ North English	BS 879038
Company D	LZ Uplift	BR 919745
15th Light Equipment Company	Phu Tai	CR 008185
2nd Plt., 553rd Float Bridge Company	Phu Tai	CR 008185

The 299th Engineer Battalion provides combat and operational engineer support within Binh Dinh Province for the 173rd Airborne Brigade under Operation Lee and the 4th Infantry Division under Operation Hines. At the beginning of the reporting period, both A and D Companies were tasked to support Operation Hines in the An Khe area. After 12 September, Company D joined Company C in support of Operation Lee in the vicinity of Bong Son. Company A then assumed the responsibility for all of the Battalion's projects at An Khe. While little work other than the removal of three Bailey Bridges at Bong Son was performed directly under Operation Lee or Operation Hines, the companies at Bong Son and An Khe have numerous operational support projects under separate directives.

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In Bong Son, Company C provides operational support to units other than the 173rd Airborne Brigade and supports the MACV pacification and revolutionary development programs there in addition to performing maintenance and repair of QL-1. Under separate directives, Company C completed redecking the 960' Hoai Nhon RR Bridge by 22 September, started work on the 320' Kim Son Bridge and had completed decking four of the eight spans before monsoon rains curtailed work at the end of the reporting period. In addition, a drainage system was provided for Firebase Classic and work was begun on the Tam Quan causeway bridge as part of the 173rd Airborne Brigade's pacification program. Company C continued to work on the construction of its own living/fighting bunkers which are nearly complete. The company is now starting on the MACV living facilities at Tam Quan.

Prior to 12 September, Company D was primarily concerned with LOC Maintenance and Repairs on QL-19. After its relocation, the company applied a limited effort on developing its own facilities and immediately began work on emergency repairs of QL-1 north of Phu Cat and the upgrading of secondary roads such as Route 505 and two unnumbered routes in support of the 173rd Airborne Brigade's pacification program. Company D also performs normal maintenance and repair of QL-1 north of Phu Cat as necessitated by both enemy activity in the form of craters and blown culverts, and normal deterioration caused by the increasingly heavy monsoon rains and heavy traffic.

At An Khe, Company D was originally responsible for the maintenance of QL-19 from the An Khe Pass to the Mang Giang Pass. Company A took over this responsibility and currently devotes the bulk of its available effort to the maintenance of this critical route in the face of increasing enemy activity in October. Drainage problems are critical in the An Khe and Mang Giang passes; hence most of the effort has been devoted to repairing ditches, potholes, and road shoulders in these two areas. At BR 19-26 a 100' DD Bailey Bridge was extended and reduced to a skeleton to prevent its collapse after a severe storm damaged the abutments. Company A began work in mid-October on the repair of the POL pipeline at critical points and made an estimate for the repair of bridge bypasses at bridges 18, 19, 22, 24.

At Camp Radcliff, Company A undertook all of the operational support projects left by Company D. By 20 September, Company A completed the upgrading of the Williams Bridge, inverting the third tier of the Bailey Bridge and installing overhead transoms and sway braces. By the end of the reporting period, work was 90% complete on the construction of 13' high protective revetments around the Main Power Switch at Camp Radcliff. In September, work was begun on the 146 aircraft revetments for the An Khe airfield; however, adverse weather conditions reduced any progress to a minimum. At the end of the reporting period, plans were made to prefabricate these revetments. Also in September, materials were assembled for the repair of the An Khe taxiway, although critical shortages continue and work is forestalled by inclement weather. Other work at Camp Radcliff included land clearing about the perimeter.

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In the Qui Nhon area, Company B provided incidental engineer support as required to the Qui Nhon Support Command, but devoted the largest part of its effort to LOC Maintenance and Repair. Company B is responsible for the repair of QL-1 from CR 006200 to Phu Cat and QL-19 from its junction with QL-1 to the An Khe Pass. In addition to pothole repair and upgrading the shoulders and drainage system along 12 miles of the LOC, Company B repaired several bridges. By 10 August, Company B completed a thorough renovation of Bridge 300 on QL-1. On 25 October, Company B completely repaired the ARVN Bypass bridge on Route 440. B Company also cleared the spans damaged by sapper attack of BR 19-5 for subsequent replacement.

The most significant separate project in the Qui Nhon area was the completion of the burial of the double 8" API pipeline from Tank Farm #1 to Tank Farm #2 by 15 August. In September, work continued on the pipeline buried along QL-19 for 7½ miles west of Cha Rang, with the construction of concrete caps for portions of exposed pipe to prevent pilferage and mining incidents.

Other projects in the Qui Nhon area included the completion of the Dial Central Revetments in Phu Tai by 20 September, the completion of the Cha Rang ADF Van Revetments by 12 October, and the completion of a MACV "Get Well" project at Binh Khe. B Company initiated repairs of aircraft revetments at the Qui Nhon airfield on 28 September. This project remained 85% complete at the end of the reporting period for lack of materials. On 31 October all Company B projects were stopped or transferred in anticipation of the closing out of the company by 15 November as a result of a 142 man troop reduction.

The 15th Light Equipment Company provided general equipment support for the Battalion throughout the reporting period. In addition, a platoon worked under the operational control of Company C on the paving of Route LTL-3A from LZ Pony to the intersection with QL-1. For this project some 17,000 cy of fill were hauled and 3.8 miles of the 10 mile stretch were paved. The program was severely hampered in October because of monsoon rains. The 2nd Platoon of the 553rd Float Bridge Company, attached to the 15th LE Company, was used throughout the reporting period for its haul capability in general support of the line companies. The Support Platoon of the 15th LE Company detached its quarry section to support the 815th Engineer Battalion at WEBB quarry in Pleiku. In addition, the earth moving section of the 1st Platoon was sent on 25 October to support the 20th Engineer Battalion for the QL-14S road project.

Throughout the reporting period, enemy activity was minimal. Enemy mining necessitated great care in the placing of concrete caps on the pipeline near Qui Nhon but served only to slow the operation. One mining incident occurred on Route 505, damaging a 5T Dump Truck. Mines were a constant threat on new portions of this secondary road. On Route 3A, which was supposedly clear, a neglected AP mine caused one casualty but mining did not appreciably affect progress. The last week of October, enemy activity increased substantially in the form of ambushes and sapper activity in the An Khe area and blown culverts and road craters interdicting QL-19. Activity of this sort will appreciably affect Company A's work effort on

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directed projects and will require even greater emphasis on maintenance of QL-19 during the next quarter.

From 1 August until 31 October, the nonavailability of materials had an increasingly deleterious effect on the Battalion's progress. Cement, sheet metal, and lumber shortages caused delays in all revetment projects and such vertical construction as MACV Facilities. Plumbing fixtures have likewise become critical for the MACV projects.

During October the Battalion was directed to prepare for the loss of 142 onlisted positions and to prepare a plan for the adjustment of these losses. At the end of the reporting period, Company B was directed to prepare to be closed out and to distribute its assets among the other companies. Arrangements were made for the transfer of outstanding projects to the 84th Engineer Battalion or their completion by a platoon from Company D, which would have as its primary mission the assumption of the LOC Maintenance responsibilities on Routes QL-1 and QL-19 in the vicinity of Qui Nhon.

The period 1 September to 15 October was designated Brigade Consolidation Month by the Commanding General, 18th Engineer Brigade. During this period it was assumed that the Battalion could use the time provided by reduced activity incident to the monsoon season to increase the level of efficiency of the unit in such areas as administration, training, security, and others. Since the monsoon season had not arrived during this time frame, the companies devoted a secondary effort to consolidation so as to capitalize on the remaining days of the construction season. Significant improvements were made, however, in each company in the area of physical security, particularly on the defensive perimeter. Efforts in the other areas designated for consolidation were confined to the preparation for and the corrective action incident to the Annual General Inspection which the 299th Engineer Battalion received during the week of 8 September and the Command Maintenance Management Inspection which A, D and Hqs companies received during the week of 7 October.

2. Lessons Learned: Commander's Observations, Evaluations, and Recommendations.

a. Personnel.

(1) Inprocessing Procedures.

(a) OBSERVATION: In the past there have been significant omissions in the procedures for processing incoming personnel.

(b) EVALUATION: By affixing a checklist on the records of incoming personnel, the omissions that formerly occurred were effectively stopped. This cover sheet follows the concept of the Installation Clearance Record, DA Form 137, and requires that each item be initialed when completed.

(c) RECOMMENDATION: That units standardize their inprocessing procedures and develop a checklist/cover sheet to insure these procedures are followed.

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b. Intelligence. None.

c. Operations.

(1) Loading Asphalt Distributors.

(a) OBSERVATION: The use of an above ground structure for a Chinaman to load an asphalt distributor presented needless difficulty in the handling of asphalt materials and excessive lost time.

(b) EVALUATION: A ground-level Chinaman permits horizontal movement of barrels of asphalt to the dedraining site and facilitates stockpile segregation of various types of asphalt on either side of the Chinaman. This Chinaman can be constructed by making a deep cut capable of containing a distributor and placing a wooden bridge over the cut from which to load the distributor.

(c) RECOMMENDATION: That units give consideration to the possibility of a ground level Chinaman for loading asphalt distributors where terrain permits.

(2) Developing a Hardstand for Asphaltic Table Mixing.

(a) OBSERVATION: Efficient production of high quality table mixes occurred only after a hardstand was built on which to mix the asphaltic materials.

(b) EVALUATION: Compacted soil will soak up much of the asphalt for a table mix, resulting in a waste of asphaltic material and the unwanted inclusion portions of the mixing floor to the mix itself thereby reducing the quality of the mix. By using a prepared hardstand or by first building a hardstand these losses can be avoided.

(c) RECOMMENDATION: That attention be given to the hardstand prior to mixing asphaltic materials and aggregate to increase the overall efficiency of the operation.

(3) Application of an Asphaltic Prime Coat to Damp Compacted Soil.

(a) OBSERVATION: When asphaltic prime coats are applied to a damp surface water creates a barrier precluding penetration of the asphalt and proper adhesion.

(b) EVALUATION: This problem can be avoided by the use of a grader to cut the top 1/2 to 1" from the surface thus removing excess water and breaking the seal which precludes penetration of asphalt into the ground.

(c) RECOMMENDATION: That units strip the surface of the area to be primed with a grader when damp conditions exist.

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(4) Expedient Culverts for Secondary Roads.

(a) OBSERVATION: On secondary road projects, it was noticed that the farmers would cut ditches across the road to permit water to flow between their rice paddies. The installation of culverts for this purpose was costly and impractical because of small size.

(b) EVALUATION: By substituting salvaged steel pipe, approximately 8" in diameter, for the culvert and placing the sections at 100 meter intervals, sufficient drainage was provided for the farmers' purpose at a saving in cost and effort.

(c) RECOMMENDATION: That expedient pipes be substituted for culvert where drainage requirements are small, as in the case of inter-paddy drainage.

(5) RC-800 as a Construction Water Proofing Compound.

(a) OBSERVATION: When living/fighting bunkers were constructed with flat roofs, leaks became a severe problem. A water tight seal was required.

(b) EVALUATION: By placing tar paper on the roofs and sealing it with RC-800, an effective water-tight roof was provided. RC-800 is heated and poured between the seams; when it solidifies, a tight seal is attained.

(c) RECOMMENDATION: That RC-800 be considered as an effective water repellent sealing compound for roofing and other cases where a water-tight seal is required in vertical construction.

(6) Concrete Shields for Exposed Pipeline Connections.

(a) OBSERVATION: On sections of a buried POL Pipeline where it passed over culverts and was close to the surface, numerous mining incidents occurred. Enemy personnel placed pressure release charges under broken connections located over the culverts. When pipeline repair teams checked the breaks, they detonated the mines, causing casualties and damage to both the pipeline and the culvert.

(b) EVALUATION: By placing a 24" culvert section under each coupling and filling it with high strength concrete to cover the coupling, Company B made such mining practices impractical and thus reduced both casualties and damage.

(c) RECOMMENDATION: That exposed pipeline connections be encased from both the top and bottom to prevent mining incidents.

(7) Diversion Ditches on Steep Grades.

(a) OBSERVATION: In the Mang Giang Pass, it was noticed that the road maintenance problem was aggravated by excessive erosion in the diversion ditches on steep grades.

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(b) EVALUATION: By building small check dams with salvaged 6" POL pipes for outlots, the erosion was cut to a minimum.

(c) RECOMMENDATION: That where steep grades exist, expedient settling basins constructed with salvaged materials be used to reduce erosion from diversion ditches.

d. Organization. None.

e. Training.

(1) Conducting Classes when Platoons are Dispersed.

(a) OBSERVATION: Training lapsed severely when platoons were dispersed for different projects.

(b) EVALUATION: Assembling the company on a scheduled basis for training proved too costly in time and effort. It was found that by setting-up instruction teams and taking them to the various project sites, the lost time was greatly reduced, class attendance was increased, and the quality of the training program was improved.

(c) RECOMMENDATION: That instructors be shuttled to projects to conduct mandatory training rather than conduct training on a company mass basis.

(2) Use of the Interpreter as an Instructor.

(a) OBSERVATION: ARVN interpreters often have an appreciation for the subtleties of Viet Cong tactics.

(b) EVALUATION: By allowing the company interpreter to conduct informal Viet Cong tactics classes, the training program can be made more pertinent and realistic.

(c) RECOMMENDATION: That company commanders utilize their interpreters as instructors in Viet Cong tactics.

(3) Training of Replacements.

(a) OBSERVATION: Replacement personnel are not prepared to assume their duties immediately despite the mandatory in-country orientation.

(b) EVALUATION: Before assuming his duties, the replacement should be indoctrinated on the tasks and problems that are peculiar to his unit if he is to effect a smooth adjustment to his new duties. This training should be in addition to the in-country orientation that all incoming personnel receive.

(c) RECOMMENDATION: That the replacement be given a three-day orientation at the Battalion or Company level before assuming his duties.

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f. Logistics. None.

g. Communications. None.

h. Material. None

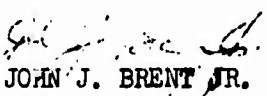
i. Other.

(1) Scheduling of Religious Services.

(a) OBSERVATION: Religious services scheduled at the end of the work day are generally not well received.

(b) EVALUATION: Services are better received in the morning before the troops are tired and dirty. When this is not possible, scheduling around the lunch hour has proved more effective than evening services. Soldiers will attend services if services are made convenient but will generally not attend if an appreciable effort is required on their part. The scheduling of concurrent Protestant and Catholic services causes fewer interruptions and increases attendance.

(c) RECOMMENDATION: That chaplains make every effort to schedule services in the early morning when the troops are more receptive. It is also advisable to go to the soldier by making the service convenient to attend and to schedule Protestant and Catholic services at the same time if possible.


JOHN J. BRENT JR.
MAJ, CE
Executive Officer

EGC-CO (31 Oct 69) 1st Ind


SUBJECT: Operational Report on Lessons Learned for the Period 1 October through 31 October 1969

DA, HEADQUARTERS, 937TH ENGINEER GROUP (COMBAT), APO 96318, 24 November 1969

TO: Commanding General, 18th Engineer Brigade, ATTN: AVBC-OS, APO 96377

1. The subject report, submitted by the 299th Engineer Battalion (Combat), has been reviewed and is considered a well compiled report of organization activities.

2. I concur with the observation and recommendations of the Battalion Commander.


W.G. KRATZ
COLONEL, GE
Commanding

AVHC-CG (31 October 1969) 2nd Ind

SUBJECT: Operational Report of the 299th Engineer Battalion (Combat)
for the Period Ending 31 October 1969, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377 15 DEC 1969

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This Headquarters has reviewed the Operational Report - Lessons Learned for the 299th Engineer Battalion (Combat), as indorsed by the 937th Engineer Group (Combat). The report is considered to be an excellent account of the Battalion's activities during the reporting period.

2. This Headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.


W. MORRIS

Brigadier General, USA
Commanding

CF:

- 1 - CO, 937th Engr Gp
- 1 - CO, 299th Engr Bn

AVHGC-DST (31 Oct 69) 3d Ind
SUBJECT: Operational Report-Lessons Learned, 299th Engineer Battalion (C)
Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HEADQUARTERS, UNITED STATES ARMY, VIETNAM, APO San Francisco 96375

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-DT,
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 31 October 1969 from Headquarters, 299th Engineer Battalion (C).

2. Comments follow:

a. Reference item concerning "Concrete Shields for Exposed Pipeline Connections", page 6, paragraph 2c(6); concur. However, this practice is applicable only in those locations where the pipeline is close to the surface.

b. Reference item concerning "Scheduling of Religious Services", page 8, paragraph 2i(1). Although this recommendation is possible under optimum conditions, the availability of chaplains in Vietnam makes it infeasible as a general policy. It is incumbent upon the commanders to schedule services which meet the needs of the local situation, utilizing chaplain resources at the time they are available.

FOR THE COMMANDER:

Cy furn:
299th Engr Bn
18th Engr Bde

John A. O'Brien CAC A6C
JOHN A. O'BRIEN
Colonel, AGC
Adjutant General

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GPOP-DT (31 Oct 69) 4th Ind

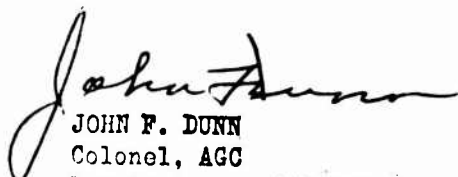
SUBJECT: Operational Report of HQ, 299th Engineer Battalion (C) for
Period Ending 31 October 1969, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 15 JAN 70

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:


JOHN F. DUNN
Colonel, AGC
Deputy Adjutant General

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299th Engineer Battalion

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